

205 and standard deviation 25. A wholesaler decides to grade such oranges by weight. He decides that the smallest 30 per cent should be graded as small, the largest 20 per cent graded as large, and the remainder graded as medium.

Determine, to one decimal place, the maximum weight of an orange graded as:

(i) small

(ii) medium.

6. Jars of bolognese sauce, sold by a supermarket, are stated to have contents of weight 500 g. The weights, in grams, of the actual contents of jars in a large batch are normally distributed with mean 506 and standard deviation 5. Find the weight which is exceeded by the contents of 99.9% of the jars in this batch.

7. The distance, in kilometers, travelled to work by the employees of a city council may be modelled by a normal distribution with mean 7.5 and standard deviation 2.5. Find d such that 10% of the council's employees travel less than d kilometers to work.

8. An airline operates a service between Manchester and Paris. The flight time may be modelled by a normal distribution with mean 85 minutes and standard deviation 8 minutes. In order to gain publicity for the service, the airline decides to refund fares when a flight time exceeds q minutes. Find the value of q such that the probability of fares being refunded on a particular flight is 0.001.